

What is claimed is:

1. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing formed to define a suction bore that extends from the cutting accessory;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including a:

a valve chamber defined by said housing wherein, the valve chamber is formed in said housing to intersect the suction bore;

a valve stem rotatably mounted in the valve chamber, said valve stem being formed to have a valve bore and said valve stem is formed so that the valve bore has a non-circular valve bore opening that is selectively placed in registration with the suction bore as the valve stem is rotated from a closed state to a fully open state, wherein the valve bore opening is further shaped to have a first narrow width section that is first placed in registration with the suction bore during the rotation of the valve stem from the closed state to the fully open state and a second, wide width section that is placed in registration with the suction bore as said valve stem is further rotated toward the fully open state; and

a lever attached to said valve stem that is located outside of said housing.

2. The surgical handpiece of Claim 1, wherein:

said valve stem is formed from rigid material and is further shaped to have a stem bore that extends through said valve member;

a valve barrel formed flexible material is seated in the stem bore and said valve barrel is formed to define the valve bore including the valve bore opening.

3. The surgical handpiece of Claim 2, wherein said valve barrel is further formed to define a rib that is located around a perimeter of the valve bore opening and said rib is positioned to extend away from said valve member and is dimensioned to abut a surface of said housing that defines the valve chamber.

4. The surgical handpiece of Claim 2, wherein said valve barrel is further formed to have a circular rib that extends circumferentially around said valve stem, said rib being dimensioned to extend away from said valve stem and abut a surface of said housing that defines the valve chamber.

5. The surgical handpiece of Claim 1, further including an indexing assembly attached to said valve assembly and said housing for providing a resistance to the rotation of said valve stem when said valve stem is rotated to a position in which the valve bore opening first section is placed in partial registration with the suction bore.

6. The surgical handpiece of Claim 5, wherein:  
said housing is formed so that the valve chamber is a closed bore that has a base defined by an inner surface of said housing;

said valve stem is formed with an end surface that is located adjacent the inner surface of said housing that defines the base of the valve chamber; and

a retaining member is positioned in one of said valve stem, valve stem or said housing and is positioned to engage one of said housing, said valve stem or said valve arm to removably hold said valve stem in the valve chamber.

7. The surgical handpiece of Claim 1, wherein:  
said housing is formed so that the valve chamber is a closed bore that has a base defined by an inner surface of said housing;

said valve stem is formed with an end surface that is located adjacent the inner surface of said housing that defines the base of the valve chamber; and

a retaining member is positioned in one of said valve stem, valve arm or said housing and is positioned to engage one of said housing, said valve stem or said valve arm to removably hold said valve stem in the valve chamber.

8. The surgical handpiece of Claim 7, wherein:

said valve lever or said valve stem is provided with a bore in which said retaining member is seated, said bore being positioned so that said retaining member is directed towards a surface of said housing; and

said valve lever or said valve stem is provided with a removable locking member positioned to engage said retaining member.

9. The surgical handpiece of Claim 1, wherein said valve stem is shaped to have first and second valve bore openings at the opposed ends of said valve bore, each said valve bore opening being non-circular and having a narrow width section and a wide width section, wherein said valve stem is further formed so that the valve bore is shaped so that the valve bore openings have opposed orientations relative to a lateral axis of said valve stem.

10. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing being formed to define a suction bore that extends from the cutting accessory and a valve chamber that intersects the suction bore;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including a:

a valve stem moveably mounted in the valve chamber, said valve stem being formed from to define

a valve bore that has a non-circular valve opening that is selectively placed in registration with the suction bore, said valve stem being further formed so that the valve opening has a first section with a first cross sectional width and a second section that is contiguous with the first section that has a second cross sectional width that is greater than the first cross sectional width and so that when said valve stem is moved from a closed position to an open position, the valve opening first section moves into registration with the suction bore before the valve bore opening second sections moves into registration with the suction bore; and

a moveable control member connected to said valve stem that is located outside of said housing for manually establishing the position of said valve stem.

11. The surgical handpiece of Claim 10, wherein said valve stem is rotatably moveable in the valve bore.

12. The surgical handpiece of Claim 11, further including an indexing assembly attached to said valve assembly and said housing for providing a set resistance to the rotation of said valve stem when said valve stem is rotated to a position in which the valve bore opening first section is placed in partial registration with the suction bore.

13. The surgical handpiece of Claim 10, wherein:  
said valve stem is formed from rigid material and is further formed to have a stem bore that extends through said valve stem;

a valve barrel formed from flexible material is seated in the stem bore and said valve barrel is formed to define the valve bore including the valve bore opening.

14. The surgical handpiece of Claim 10, wherein:  
said valve stem is formed from rigid material and is further formed to have a stem bore that extends through said valve stem;

a valve barrel formed flexible material is seated in the stem bore and said valve barrel is formed to define the valve bore including the valve bore opening and said valve barrel is further formed to define a first rib that is located around a perimeter of the valve bore opening and dimensioned to contact a surface of said housing that defines the valve chamber.

15. The surgical handpiece of Claim 14, wherein:  
said valve barrel is further formed to have a second rib that extends circumferentially around said valve stem, said second rib being dimensioned to contact the surface of said housing that defines the valve chamber.

16. A surgical handpiece for actuation of a cutting accessory attached to said cutting accessory, said handpiece comprising:

a housing, said housing shaped to have a suction bore that extends from the cutting accessory and a valve chamber that intersects the suction bore;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including a:

a valve stem rotatably mounted in the valve chamber, said valve stem being formed from rigid material and being shaped to have an outer surface and a valve stem bore that extends through said valve stem;

a valve barrel located around the outer surface of said valve stem, said valve barrel shaped to define a first rib that extends circumferentially around said valve stem and second and third ribs that extend around opposed openings into the valve member bore, said first, second and third ribs being

dimensioned to abut surfaces of said housing the defines the valve chamber; and

a lever attached to said valve member that is located outside of said housing.

17. The surgical handpiece of Claim 16, wherein: said valve stem bore has a cross sectional area; and said valve barrel is disposed inside the valve stem bore and is shaped to define a valve bore that is within the valve stem bore and shaped to have a cross-sectional area less than the cross-sectional area of the valve stem bore.

18. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing shaped to define a suction bore that extends from the cutting accessory and a valve chamber that intersects the suction bore;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including a:

a valve stem rotatably mounted in the valve chamber, said valve stem being formed from rigid material and being shaped to have a valve stem bore that extends through between opening formed in said valve stem, the valve stem bore having a cross sectional area; and

a valve barrel formed of compressible material and disposed in the valve stem bore, said valve barrel shaped to define a valve bore that extends through the valve stem bore, the valve bore having opposed valve bore openings and a cross sectional area less than the cross sectional area of the valve stem bore and said valve barrel is formed to define first and second ribs, each said rib extending around the outer perimeter of a separate one of the valve bore openings and being dimensioned to contact

a surface of said housing that defines the valve chamber; and

an arm attached to said valve stem that is located outside of said housing.

19. The surgical handpiece of Claim 18, wherein said valve barrel is further formed to define a third rib that extends circumferentially around said valve stem and that is dimensioned to contact the surface of said housing that defines the valve chamber.

20. The surgical handpiece of Claim 18, wherein, said valve barrel is formed to extend around the outer surface of said valve stem and to have a third rib that extends circumferentially around said valve stem and that is dimensioned to contact the surface of said housing that defines the valve chamber and to define a groove that extends circumferentially around said valve stem, the groove being located adjacent said third rib.

21. The surgical handpiece of Claim 18, wherein:  
said housing is formed so that the valve chamber is a closed bore that has a base defined by an inner surface of said housing;

said valve stem is formed with an end surface that is located adjacent the inner surface of said housing that defines the base of the valve chamber; and

said valve barrel is further formed to extend circumferentially around said valve stem.

22. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said being formed to define a suction bore that extends from the cutting accessory and a valve chamber that intersects the suction bore, the valve chamber being a closed-ended bore;

a power generating unit disposed in said housing configured to actuate the cutting accessory;

a valve assembly, said valve assembly including:

a stem that is rotatably fitted in the valve chamber, the stem shaped to define a through bore that is selectively placed in registration with the suction bore and a lever that is integral with said stem, wherein said stem or said lever is formed with a first valve hole that is directed towards said housing and a second valve hole that intersects the first valve hole; and

a first pin that is slidably fitted in the first valve hole and the portion of the second valve hole that intersects the first valve bore and a second pin that is removably fitted in the second valve hole wherein, said second pin is dimensioned so that said second pin seats in the portion of the second bore in which said first pin can slide and said first pin is dimensioned so that when, said first pin is blocked from the second valve hole, said first pin extends out of said valve and engages a surface of said housing.

23. The surgical handpiece of Claim 22, wherein: said stem or said lever is formed with a third valve hole; an indexing member is fitted in the third valve hole and positioned to engage a surface of said housing.

24. The surgical handpiece of Claim 22, wherein: said stem is formed from rigid material;

a valve barrel formed from compressible material is seated in the through hole of said stem and said valve barrel defines a valve passage that extends through the through hole, the valve passage having opposed openings, and said barrel is further formed to define ribs that are located around the outer perimeters of the passage openings, the ribs being dimensioned to abut surfaces of said housing the define the valve chamber.



25. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing formed with a suction bore that extends from the cutting accessory;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including a valve member positioned to regulate fluid flow through the suction bore; and

a suction fitting rotatably mounted to said housing and that is positioned to be in fluid communication with the suction bore and shaped to receive a suction tube.

26. The surgical handpiece of Claim 25, wherein:  
said housing has a longitudinal axis; and

said suction fitting has a proximal section that extends away from said housing and that is angularly offset from the longitudinal axis of said housing.

27. The surgical handpiece of Claim 25, further including a suction mount that is rigidly mounted to said housing that is fitted to an opening into the suction bore and that has proximal end that extends away from said housing and wherein, said suction fitting is rotatably mounted to the proximal end of said suction fitting.

28. The surgical handpiece of Claim 25, further including a removeable locking member connected to said handpiece, wherein said suction fitting is formed with a groove and is mounted to said housing so that said locking member seats in the groove of said suction fitting so that said locking member releasably, rotatably holds said suction fitting to said housing.